March 19, 1940. J. G. HUYE 2,193,925

BOX

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Fig. 1.

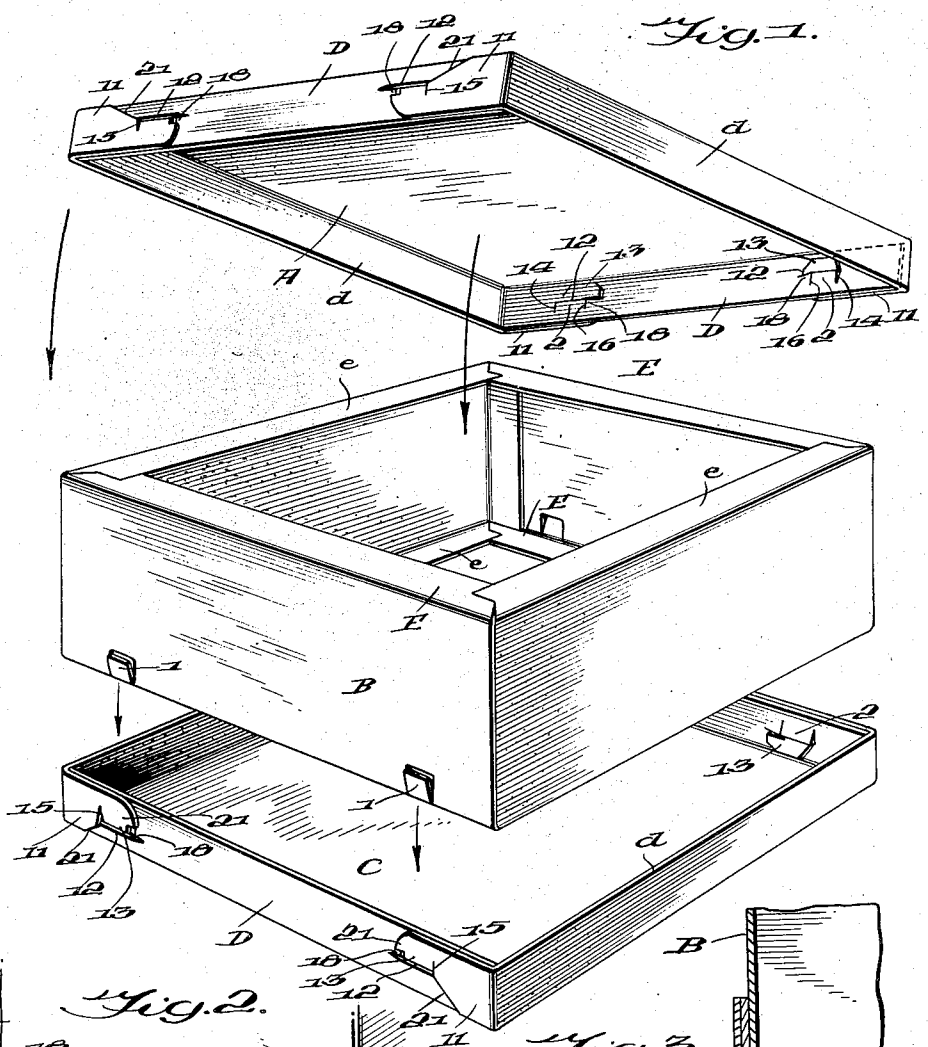


Fig. 2.

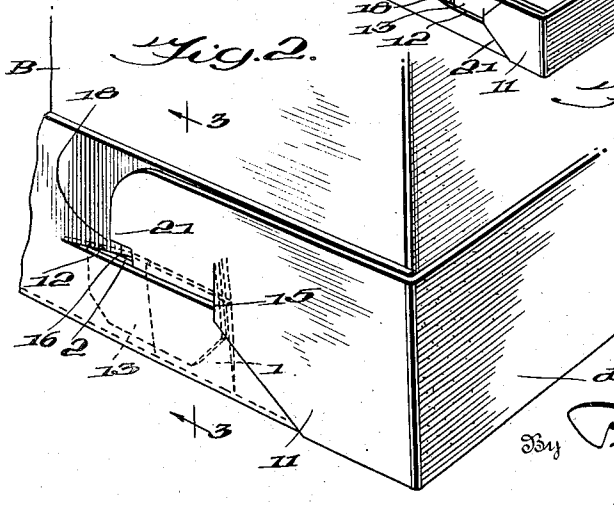
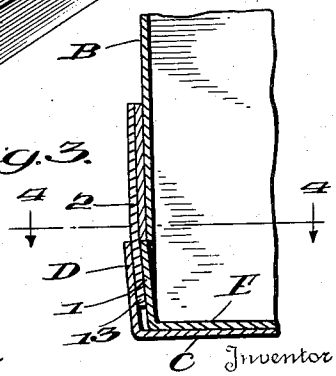


Fig. 3.



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BOX

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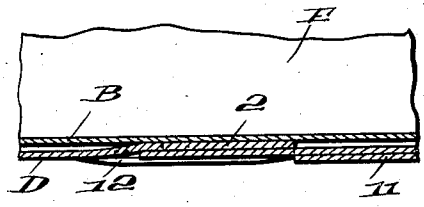


Fig. 4.

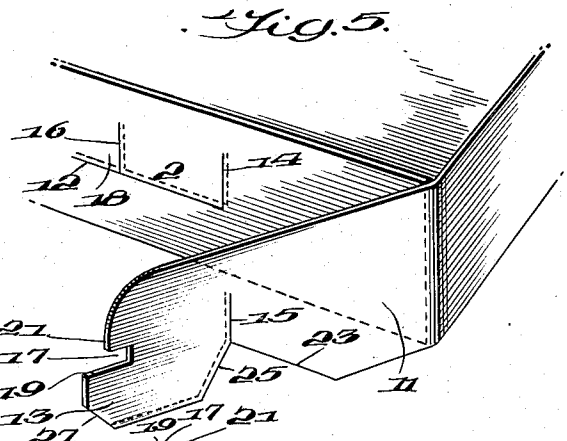


Fig. 5.

Fig. 6

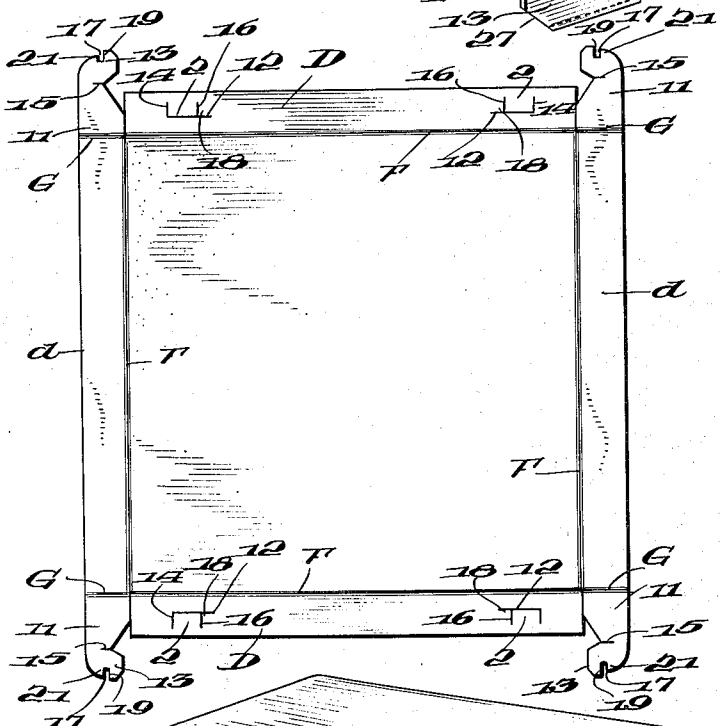
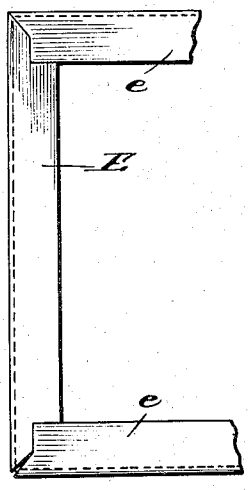


Fig. 7.



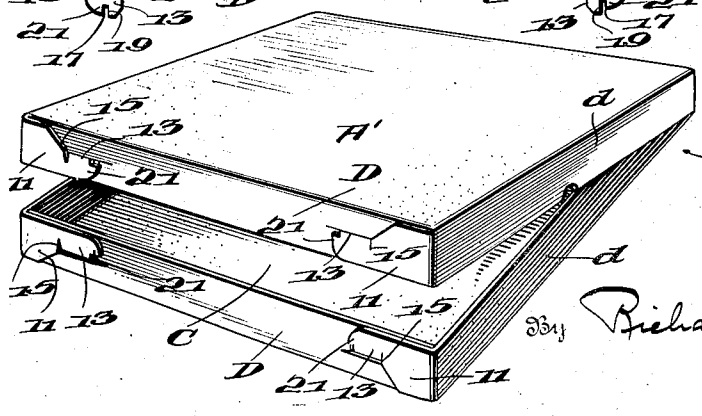


Fig. 8.

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Patented Mar. 19, 1940 2,193,925

UNITED STATES PATENT OFFICE

2,193,925

BOX

Joseph G. Huye, New Orleans, La.

Application March 24, 1938, Serial No. 197,949

5 Claims. (Cl. 229—23)

This invention relates to paste board or paper board boxes.

The primary object of the invention, broadly considered, is to provide a new construction of lap-type corner lock for box trays or box tops or bottoms; to provide in such a corner lock a construction facilitating the quick and easy insertion and movement to locking or operative position of the locking tongue; to provide a crossing edge engagement construction preventing the unintentional withdrawal of the locking tongue in a longitudinal direction; to provide a crossing edge face engagement construction preventing the unintentional withdrawal movement of the locking tongue in a vertical direction; and to provide special details for maintaining the parts in operative relationship and to assure such crossing edge relationship between the parts preventing unintentional vertical relative movement.

More narrowly construed, the invention has for its object to provide in a knock-down set-up box construction of the general type shown in my Patent No. 1,683,192 granted September 4, 1928 and in my pending application Serial No. 61,999, filed February 1, 1936 for Boxes, the combination of a bottom or top member employing the special new lapping type corner lock construction hereinafter set forth with a box body having an end portion fitting into the lip of the top or bottom section and provided with slightly resilient locking tongues, whereby the special lapping type corner lock construction combines and cooperates with the locking tongues of the body to lock the body and the top or bottom, as the case may be, together. If for any reason desired both the top and bottom portions of the body section might be provided with locking tongues and in such case when the tops and bottoms, or the top and bottom of the particular box, are applied to the respective end portions of the body both the top and bottom would be locked to the body portion in accordance with the teaching of my Patent No. 1,473,432 granted November 6, 1923.

In the accompanying drawings:

Figure 1 is an exploded view of a box constructed according to my invention;

Figure 2, a fragmentary perspective view of a corner of my new and improved box showing the box body and bottom in assembled relation;

Figure 3, a view on the line 3—3 of Figure 2, looking in the direction of the arrows;

Figure 4, a view on the line 4—4 of Figure 3, looking in the direction of the arrows;

Figure 5, a detail perspective view of a box tray corner embodying my new and improved corner lock, the locking tongue being in unlocked or inoperative position;

Figure 6, a top plan view of a box tray blank in unfolded or flat condition.

Figure 7, a fragmentary top plan view of a box body of my invention; and,

Figure 8, a perspective view of a box top and bottom in partially assembled relation.

Referring now in detail to the drawings, A designates a top section or cover of a knock-down set-up box; B, the body section thereof; C, the bottom or lower end section thereof. Both the top and the bottom, A and C respectively, have an edge lip adapted to snugly receive the adjacent end portion of the body section B and comprised of lip panels D and lip panels *d* extending at right angles to the panels D.

The body section B is formed at each end with spreading and bracing reinforcing flanges E and *e*, the adjacent end portions of each flange E and each flange *e* being mitered in their outer portions to make a close fit, and from the end of the miter the ends of each of the flanges *e* being formed as a right angle and received in a corresponding right angular notch or recess in the flanges E, whereby each end portion of the body section B will be provided with a definite stop in its reinforcing and spreading flange construction preventing endwise deformation or sidewise deformation.

The body section B is shown in Figure 1 as having its lower portion provided or formed of slightly resilient laterally outwardly projecting locking tongues 1 having upper edge faces adapted to, and operating to, fit beneath and in line with, and engage, the lower edge face of a locking portion or element 2, preferably formed integral with the respective end portions of the respective lip panels D.

The top sections or covers A and the bottoms or lower sections C are exact duplicates in size, shape and construction and are formed up from duplicate blanks of the form and construction shown in Figure 6, so a description of the one constitutes a description of the other also.

The blank for said top and bottom sections has an end portion of unbroken area, lip panel portions D and *d* preferably integral with the edge of the end portion, and the panel portions *d* respectively have at each end portion respectively lapping tongues 11 respectively integral with the respective end portions of the respective panels

d. Scored fold lines F serve to facilitate the easy folding of the lip panels D and *d* into erected position at right angles to the face of the end portion and with the panels D parallel to each other and extending at right angles to the panels *d*. Score lines G serve to facilitate the folding of the lapping tongues 11 to positions at right angles to the panels *d* and parallel to the panels D.

Adjacent each edge portion each lip panel portion D is cut through as at 14 and 16, all of said cuts or slots 14 and 16 being parallel to each other and parallel to the lip panels *d*. Cuts or slots 12 in the respective end portions of the respective lip panels D and extending respectively from the cuts or slots 14 beyond the cuts or slots 16 and in communication with the same at their inner or lower ends serve with said slots 14 and 16 to define, or cut along three sides, the lip locking tongues 2 of elongated generally U-shaped form connected along their upper sides to, and being integral with, their respective lip panels D. Likewise, the respective slots or cuts 12 extend beyond the respective slots or cuts 16 and with the latter serve to form right angle triangular slightly resilient abutment elements 18.

Each locking tongue 11 is formed with a locking end or foot 13 and has preferably the rear and lower portion of its foot 13 cut away along a slanting line 25 and the adjacent portion of its body cut away along a reversely slanting line 23, so that these lines run to a common point of intersection and form a triangular form notch, facilitating the insertion of the foot 13 into the specially cut and formed portion of the adjacent portion of the corresponding lip panel D. A slot or cut 15 parallel to the fold line G of the particular lock tongue 11 extends from the point of intersection of the lines 25 and 23 for a distance substantially equal to the length of the slot 14 and in the flat condition of the blank extends substantially at right angles thereto so that in the erected condition of the lip panels the slots 14 and 15 will extend in the same general direction with the edge or wall of the slot 15 slanting across and abutting or substantially abutting the opposed outer edge or wall of the slot 14.

The lower inner corner of each foot 13 will be cut away in a slanting line preferably as shown at 27 to facilitate easy insertion and the inner or free end of the foot 13 will be notched out as at 17 to provide an abutting locking edge face 19 to intersect and abut the oppositely presented face of the triangular abutment 18 to prevent unintentional vertical swinging movement of the lapping tongues 11 after the same shall have been inserted into locking relationship.

The upper portion of the foot 13 is provided with a guard or nose portion 21 extending in the operative relationship of the parts beyond the slot 16 and so acting to hold the adjacent portion of the abutment 18 inclined inward, whereby the abutment 18 will be prevented from springing back in its entirety to exact parallel relationship, but will be held at an inclination to extend across and intersect the oppositely presented abutment edge face 19 of the foot 13.

The lower portion of the nose 21 will be spaced at an interval from the abutment edge face 19 by a notch 17, the exact distance of this spacing varying, with a reasonable tolerance or allowance for slight variations, in accordance with the thickness, stiffness, resiliency and other characteristics of the particular board used or paste board or paper board to permit the lower portion of the abutment 18 to spring backward or outward slightly under its own resiliency to lie in said notch 17 in a slanting line inward across and in the path of said abutting edge face 19.

For shipping and storing purposes each of the top sections or covers A and bottoms or lower sections C will be in perfectly flat blank form, as illustrated in Figure 6, being comparable to a flat sheet of paper so as to occupy the least possible space. It is contemplated that a number of these flat blanks for the tops and bottoms will be kept available in convenient cabinet compartments together with a number of different height collapsed body sections B so that the correct height box might be erected right at the counter as needed by the sales personnel.

To erect the blank shown in Figure 6 into a top or bottom section A or C it suffices to fold the lip panels D and the lip panels *d* on the same side of and perpendicular to the face of the main body of the section; to thereafter fold the lapping tongues 11 on their respective score lines G into positions at right angles to their respective lip panels *d* and parallel to the respective lip panels D. Thereafter, the feet 13 will be forced inward against the outer faces of the locking elements or tongues 2 and the abutments 18, forcing the same to give inwardly and will at the same time be shoved downwardly toward the main body of the top or bottom section, thus passing inwardly and beyond the abutment 18, which then springs outwardly slightly so that its lower edge face extends slantingly across the upwardly presented abutment face or edge 19 and locks it against upward movement, while the rear wall or edge of the slot 14 engages the inner edge of the slot 15 to prevent outward endwise movement of the foot 13 to such extent as would withdraw the abutment 18 from beneath the lower edge of the abutment 18. This construction results in bending or swinging the locking element or tongue 2 inward along its upper connected portion as a hinge to lie as a whole substantially parallel to the opposed outer face of the body B and to the upper locking edge of the locking tongues 1 respectively of said body B. Thus this corner locking construction serves not only to provide means for locking the corners of the lip of the top section or cover A or the bottom or lower end section C together but also to provide means to cooperate with the locking tongues 1 to lock the bottom C to the body B.

While the corner locking construction is peculiarly well suited to serve the dual function mentioned, it is not limited, when considered in its broadest aspects, to such dual functions and may be utilized simply as a corner lock for a tray either by itself or to be used in conjunction with a similar tray in telescopic relation, such as is common for instance in the so-called tray or suit box.

In the modification illustrated in Figure 8 I have shown a suit box or wrap box employing two tray members such as the bottom C and the top or outer member A' adapted to be fitted over the bottom C in telescopic relation, both said trays or sections C and A' embodying the corner lock construction above described, the body section B being dispensed with in this modification and the feature of locking one body or box section to another box section being eliminated, but the corner locking feature being retained.

I claim:

1. A paste board box comprising a body hav-

ing a plurality of outwardly and upwardly projecting locking tongues, in combination with a box bottom comprising a main portion; a plurality of slotted panels, each having adjacent each end a slot parallel to said main portion, an integral downwardly depending approximately U-shaped locking member, an abutment extending from the inner end of said member to the inner end of said slot; and a plurality of lapped panels each formed at each end with a lap, each lap engaging the outer face of the corresponding end portion of the corresponding slotted panels and being formed with a foot extending downward through its corresponding slot and having a vertical edge crossing and engaging its corresponding vertical abutment wall and a horizontal edge crossing and engaging the lower edge of its cooperating deformable abutment, and the respective locking tongues engaging with their upper edges the opposed lower edges of the corresponding locking members.

2. A paste board box comprising a body having a plurality of outwardly and upwardly projecting locking tongues, in combination with a box bottom comprising a main portion; a plurality of slotted panels, each having adjacent each end a slot parallel to said main portion, an integral downwardly depending locking member with its lower edge forming part of the upper wall of said slot, and a vertical abutment wall extending upward from each slot; and a plurality of lapped panels each formed at each end with a lap, each lap engaging the outer face of the corresponding end portion of the corresponding slotted panels and being formed with a foot extending downward through its corresponding slot and having a vertical edge crossing and engaging its corresponding vertical abutment wall and a horizontal edge engaging an opposed edge of said end portion of said slotted panel, and the respective locking tongues engaging with their upper edges the opposed lower edges of the corresponding locking members.

3. A paste board box comprising a body having a plurality of outwardly and upwardly projecting locking tongues, in combination with a box bottom comprising a main portion and a plurality of lip panels, each pair of adjacent panel end portions comprising a slotted end portion and a lap end portion, said slotted portion being formed with a slot parallel to said main portion, an integral downwardly depending locking member with its lower edge forming part of the upper wall of said slot, and a vertical abutment wall extending upward from said slot; and said lap end portion being formed with a lap engaging the outer face of said slotted end portion, a foot extending downward through said slot and having a vertical edge crossing and engaging its said vertical abutment wall and a horizontal edge engaging an opposed edge of said slotted end portion; and the respective locking tongues respectively engaging with their upper edges the opposed lower edges of the corresponding locking members.

4. A paste board box part comprising a main portion, and a plurality of integral slotted panels, each having adjacent each end a slot parallel to said main portion, an integral downwardly depending approximately U-shaped locking member, an abutment extending from the inner end of said member to the inner end of said slot; in combination with a plurality of lapped panels each formed at each end with a lap, each lap engaging the outer face of the corresponding end portion of the corresponding slotted panels and being formed with a foot extending downward through its corresponding slot and having a vertical edge crossing and engaging its corresponding vertical abutment wall and a horizontal edge crossing and engaging the lower edge of its cooperating deformable abutment.

5. A paste board box part comprising a main portion and a plurality of lip panels, each pair of adjacent panel end portions comprising a slotted end portion and a lap end portion, said slotted portion being formed with a slot parallel to said main portion, an integral downwardly depending locking member with its lower edge forming part of the upper wall of said slot, and a vertical abutment wall extending upward from said slot; and said lap end portion being formed with a lap engaging the outer face of said slotted end portion, a foot extending downward through said slot and having a vertical edge crossing and engaging its said vertical abutment wall and a horizontal edge engaging an opposed edge of said slotted end portion.

JOSEPH G. HUYE.